

5 **OVEREXPRESSION OF AMINOACYL-tRNA SYNTHETASES FOR EFFICIENT  
PRODUCTION OF ENGINEERED PROTEINS CONTAINING AMINO ACID  
ANALOGUES**

**ABSTRACT OF THE DISCLOSURE**

10 Methods for producing modified polypeptides containing amino acid analogues are  
disclosed.

The invention further provides purified dihydrofolate reductase polypeptides, produced  
by the methods of the invention, in which the methionine residues have been replaced  
with homoallylglycine, homoproparglycine, norvaline, norleucine, *cis*-crotylglycine,  
15 *trans*-crotylglycine, 2-aminoheptanoic acid, 2-butyrylglycine and allylglycine.